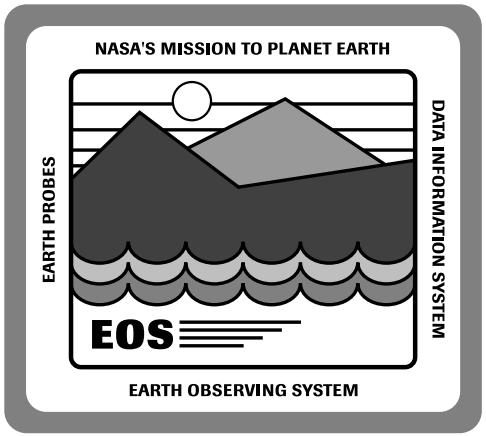
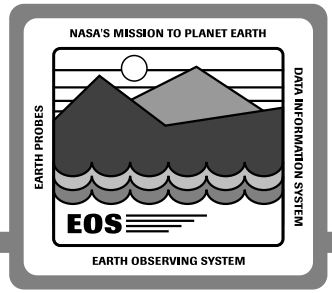


Where We Go From Here

Jenanne Murphy

13 - 14 December 1993

Where Are We?



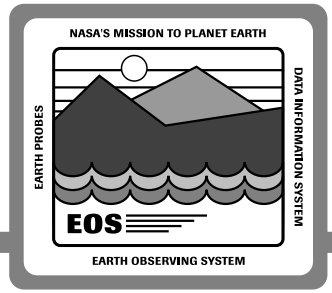
Accomplishments to Date

- **Change of approach**
- **Understanding and responsiveness to SRR concerns**
- **Architectural concepts which will be evolvable**
- **Architectural concepts which will enable GCDIS/UserDIS**

Next Steps

- **Validation of architectural concepts (via user feedback, evolutionary tests)**
- **Proof of concepts through development of system design**
- **Alignment of system design with cost and schedule (mission) constraints**

Near Term Activities



Scientific community validation of architectural concepts

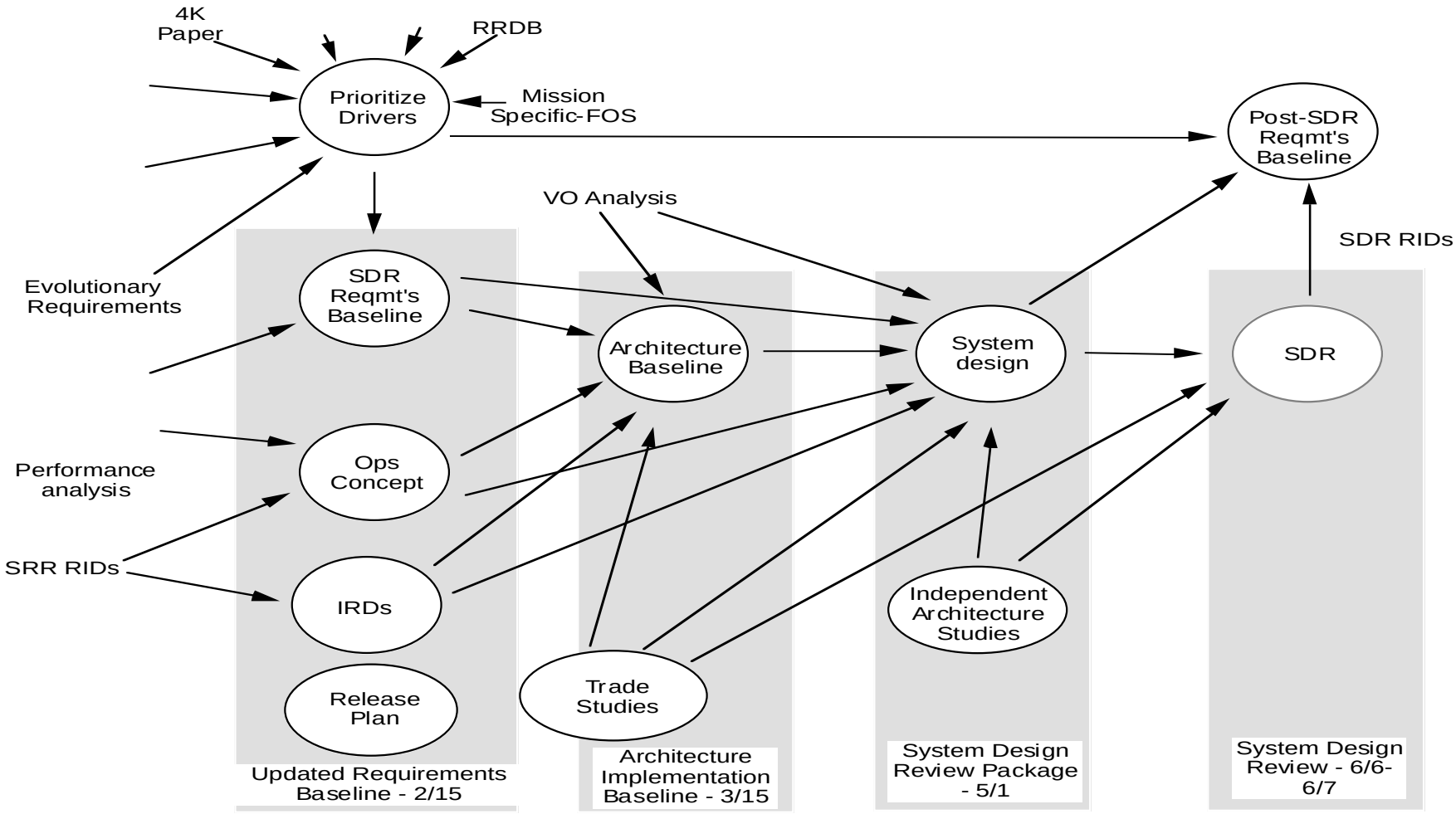
Resynchronization of requirements baseline and operations concepts with architectural vision (including cost and mission criticality tradeoffs)

Agreement on a baseline system architecture as basis for development system design

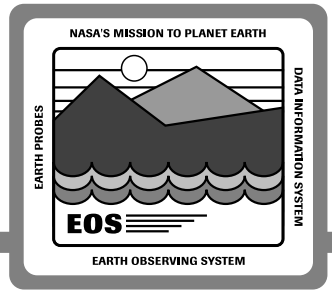
Establishment of system capabilities by time (both necessary and desired)

Design and costing of system implementation and operations over time (including make/buy and implementation tradeoffs)

SDR Plan


4K Paper
RRDB
Prioritize Drivers
Mission Specific-FOS
Post-SDR Reqmt's Baseline
VO Analysis
SDR RIDs
Evolutionary Requirements
SDR Reqmt's Baseline
Architecture Baseline
System design
SDR
Performance analysis
Ops Concept
SRR RIDs
IRDs
Independent Architecture Studies
Release Plan
Trade Studies
Updated Requirements Baseline - 2/15
Architecture Implementation Baseline - 3/15
System Design Review Package - 5/1
System Design Review - 6/6-6/7

SDR Contents



Architecture Overview

User/Data modelling results

System analysis results (including VO analysis)

Interface definitions

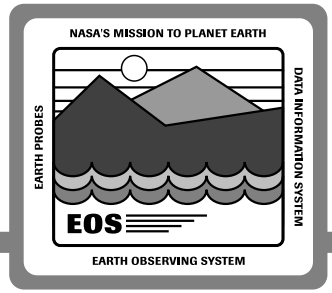
Operations Concept Overview

Initial service and API definitions

Design components implementing these services (by segment)

Evolvability assessment and trade study results

SDR Contents
(Continued)



Technology assessment

Release functionality descriptions for all releases

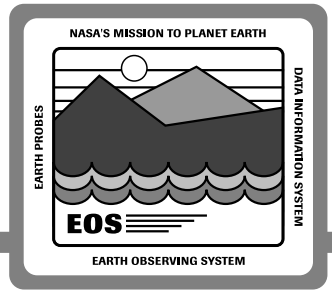
Allocation of requirements to releases

Development approach

Overall integration and test approach

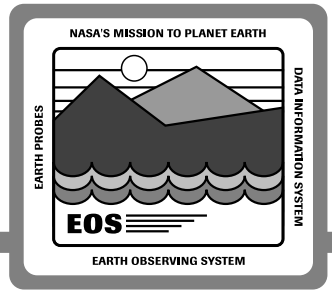
Overall maintenance and operations approach

Process Improvements



Concerns	Actions	Schedule
Need broad science community involvement	• Information exchange on plans, status, requirements and prototypes	• Visits initiated
	• Educational inst. involvement	• 3 studies initiated
	• Science User - ECS Workshops	• Spring '94
Need to incorporate evolutionary concepts	• GCDIS/UserDIS study	• White paper avail
	• System Evolution Study	• White paper avail
	• Computer Science Advisory Panel	• Members selected by mid Jan '94
Need to include external prototyping and alternative architecture approaches	• Community prototyping efforts funded and integrated into ECS development process	• Process defined; candidate efforts identified
	• Establishment of 2 external alternative architecture study teams	• RFPs issued to 16 universities ; studies commence Jan '94

External Prototyping Plans



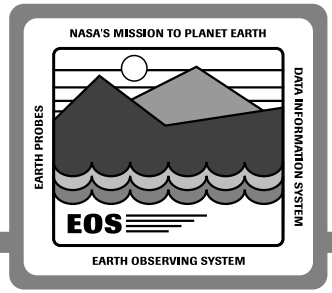
Objective

- **Insure best possible system by integrating results of external prototyping activities into ECS development**
- **Infuse new ideas early in the release development cycle**

Status of External Prototypes

- **Process defined for identifying, selecting, executing and evaluating external prototypes**
- **Prototype ideas solicited from the DAACs and user community**
- **Many promising candidates already identified**
- **Collaborative production scheduling prototype in final stages of approval process**
- **Recommendations being coordinated with ESDIS project**

Independent Architecture Studies



Objectives

- **Ensure ECS architecture selected for implementation incorporates to the maximum extent possible emerging trends in earth science research techniques and future technology trends**
- **Identify requirements which constrain or prevent an otherwise attractive architectural alternative**

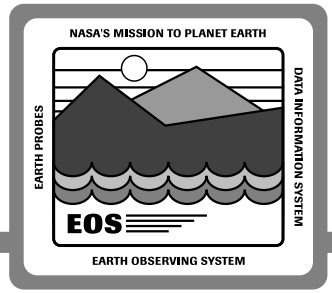
Groundrules

- **Two six-month study contracts to be awarded**
- **Teaming (especially interdisciplinary teams) encouraged**
- **Teams independent of one another to foster unique approaches**

Schedule

- **RFPs issued to 16 universities, available to others on request**
- **Proposals due 1/10/94**
- **Award scheduled for 1/28/94**

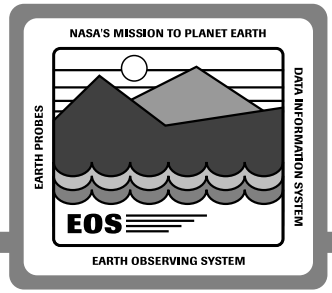
Independent Architecture Studies
(Continued)



Interaction with Ongoing ECS Work

- **ECS SOW, Executive Summary of Requirements, GCDIS/UserDIS Study, Science-Based System Architecture Drivers, and Functional Requirements Specification provided as inputs (info only)**
- **Hughes Research Labs Liaison to each study team will ensure results are fed back into ongoing architecture work**
- **Interim Report at 3 months (5/1) to identify potential impacts on current assumptions and approaches; will be fed into SDR**
- **Final Reports (7/1) to be evaluated by ECS architecture team with recommendation on results incorporation about 1 month later**

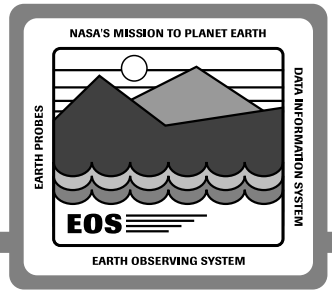
Summary



Essential ingredients for EOSDIS Success are now being put in place:

- **A vision for where we are going**
- **A plan for how to get there (focused near term, open long term)**
- **A process which is responsive to change**
- **System perspective**
- **Teamwork (scientific community, government, contractor)**
- **Communication!**

Where Are We?


NASA'S MISSION TO PLANET EARTH
EARTH PROBES
DATA INFORMATION SYSTEM
EOS
EARTH OBSERVING SYSTEM